What is claimed is:

1. A silicate phosphor comprising:

a silicon system material having particles which form center nuclei of the phosphor; and

a metallic element dispersed and mixed in each of the particles of the silicon system material,

wherein a mean particle size of the phosphor is from 0.01 to 1 μm, and particles of the phosphor are not fused together.

2. A silicate phosphor comprising:

a silicon system material having particles which form center nuclei of the phosphor; and

a metallic element dispersed and mixed in each of the particles of the silicon system material,

wherein a mean particle size of the phosphor is from 0.01 to 1 μm, a value of a coefficient of variation of particle size distribution is not more than 40%, and a shape of individual particle of the phosphor is approximately equal.

3. The phosphor of claim 1, wherein a number of particles having uniform composition distribution of constituting elements in the particles of the phosphor is not less than 50%.

4. The phosphor of claim 2, wherein a number of particles having uniform composition distribution of constituting elements in the particles of the phosphor is not less than 50%.

5. The phosphor of claim 1, wherein a coefficient of variation of inter-particle distribution of content of each of constituting elements in the particles of the phosphor is not more than 50%.

6. The phosphor of claim 2, wherein a coefficient of variation of inter-particle distribution of content of each of constituting elements in the particles of the phosphor is not more than 50%.

7. A method for producing a precursor of a silicate phosphor, comprising:

a precursor forming step for forming the precursor of the phosphor by mixing a silicon system liquid material, in which wet silica is dispersed in a liquid, with a metal system liquid material including a metallic element.

8. The method of claim 7, wherein the wet silica is colloidal silica.

9. A method for producing a silicate phosphor,

comprising:

the precursor forming step of claim 7; and

a calcining step for obtaining the phosphor by calcining the precursor obtained in the precursor forming step.

10. The method of claim 9, wherein a BET specific surface area of the wet silica is not less than 50 m^2/g.

11. The method of claim 9, wherein the metallic element is selected at least one from the group consisting of Zn, Mn, Mg, Ca, Sr, Ba, Y, Zr, Al, Ga, La, Ce, Eu and Tb.

12. The method of claim 9, wherein in the precursor forming step, a solution including a precipitant which forms a precipitate by reacting with the metallic element is mixed.

13. The method of claim 12, wherein the precipitant is organic acid or alkali hydroxide.

14. The method of claim 9, wherein the wet silica is prepared beforehand.

15. The method of claim 9, wherein the liquid is water, alcohols or a mixture of the water and the alcohols.

16. The method of claim 9, wherein the metal system liquid material includes water, alcohols or a mixture of the water and the alcohols.

17. The method of claim 9, wherein the precursor forming step forms the precursor in which the metallic element is included in uniform composition around the particles of the wet silica that become the center nuclei of the phosphor, and the calcining step performs calcining in a state that fusion of the particles of the silicon system material is not substantially occurred so as to obtain the phosphor in which the metallic element is dispersed and mixed in an inside of the particles of the wet silica.

18. The method of claim 9, wherein the calcining step includes:

a metallic element dispersing and mixing step for calcining the precursor in a state that fusion of the particles of the wet silica is not substantially occurred, and for dispersing and mixing the metallic element in an inside of the particles of the wet silica;

a sintering inhibitor mixing step for mixing a sintering inhibitor in a calcined product obtained in the metallic element dispersing and mixing step; and

a crystallizing step for obtaining a crystallized silicate phosphor by re-calcining the calcined product obtained in the sintering inhibitor mixing step.

19. The method of claim 9, wherein in the calcining step, the precursor is calcined at a temperature between not less than 400°C and not more than 1400°C.

20. A phosphor produced by the method of claim 9.

21. A display device having a phosphor layer containing the phosphor of claim 1.

22. A display device having a phosphor layer containing the phosphor of claim 2.

23. A plasma display panel comprising:

two substrates arranged so as to face to each other by keeping a predetermined distance;

partition walls for sectioning a space between the substrates in plurality, the partition walls being provided between the substrates; and

a plurality of discharge cells formed by being surrounded with the partition walls and the substrates,

wherein a phosphor layer including the phosphor of claim 20 is provided in an inner side of at least one

discharge cell among the plurality of the discharged cells.

24. The phosphor of claim 1, wherein the phosphor is produced by the method of claim 9.

25. The phosphor of claim 2, wherein the phosphor is produced by the method of claim 9.